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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/791,100 | 03/02/2004 | Hsi-Yu Chen | 3304.2.121 | 2478 |
| 21552 | 7590 | 07/29/2004 | EXAMINER | |
| MADSON & METCALF GATEWAY TOWER WEST SUITE 900 15 WEST SOUTH TEMPLE SALT LAKE CITY, UT 84101 | | | NGUYEN, CHAU N | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2831 | |

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/791,100 | CHEN ET AL. | |
| | Examiner | Art Unit | |
| | Chau N Nguyen | 2831 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-16 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 02 March 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>3/2/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Suzuki (4,898,351).

Suzuki discloses an anti-abrasive flat flexible cable (Figure 1) being applied to a flatbed scanner connected between a circuit board (not shown) and a carriage of the flatbed scanner and bending differentially with the forward or backward movement of a carriage under a platform, the cable comprising a flexible main body connected to the circuit board and the carriage respectively, and transmitting electric signals between the circuit board and the carriage, and a weighting object arranged on a portion of the flexible main body, which is possibly to be bent during the movement of the carriage, for pulling the flexible main body away from the platform (8) so as to avoid abrasion (col. 2, lines 32-35).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheng et al. (6,552,272) in view of Suzuki.

Sheng et al. discloses a flat flexible cable (Figure 2) being applied to a flatbed scanner connected between a circuit board and a carriage of the flatbed scanner (Figure 1B) and bending differentially with the forward or backward

movement of a carriage under a platform, the cable comprising a flexible main body connected to the circuit board and the carriage respectively, and transmitting electric signals between the circuit board and the carriage.

Sheng et al. (Figure 2) does not disclose a weighting object arranged on a portion of the flexible main body, which is possibly to be bent during the movement of the carriage, for pulling the flexible main body away from the platform so as to avoid abrasion. Suzuki discloses a flat flexible cable comprising a weighting object (10) arranged on a portion of the flexible main body, which is possibly to be bent during the movement of the carriage, for pulling the flexible main body away from the platform so as to avoid abrasion. It would have been obvious to one skilled in the art to provide the weighting object on a portion of the flexible main body of Sheng et al. (Figure 2), which is possibly to be bent during the movement of the carriage, for pulling the flexible main body away from the platform so as to avoid abrasion as taught by Suzuki.

The modified cable of Sheng et al. (Figure 2) also discloses the flexible main body comprising a flexible conductor having one end connected to the circuit board and the other end connected to the carriage, respectively, for transmitting the electric signals, and a flexible insulating wrapper enclosing the flexible conductor to protect the flexible conductor (re claim 2), the flexible conductor being a copper

foil (re claim 3), the insulating wrapper being made of thermoplastic material (re claim 4), the weighting object being arranged on an inner surface of the bent portion of the main body during the movement of the carriage (see Suzuki) (re claim 8), the weighting object being distributed on the flexible main body between the carriage and a halfway portion of the main body (re claim 9). Re claims 5-7, Suzuki discloses the weighting object being a thin spring-steel tape and disposed perpendicular to the movement direction of the carriage but does not disclose the tape comprising a plurality of metal bars arranged in parallel or a plurality of granular balls. However, it would have been obvious to one skilled in the art to modify the thin spring-steel tape of (Suzuki) in the modified cable of Sheng et al. with a plurality of small spring-steel tapes which are arranged in parallel or with a plurality of granular balls to improve the flexibility of the cable since it has been held that constructing a formerly integral structure into various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179. Re claim 10, it would have been obvious to one skilled in the art to choose a suitable weight ratio between the weighting object and flexible main body to meet the specific use of the resulting cable since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

6. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sheng et al. in view of Shikayama (JP6-36620).

Sheng et al. discloses a flat flexible cable (Figure 2) being applied to a flatbed scanner connected between a circuit board and a carriage of the flatbed scanner (Figure 1B) and bending differentially with the forward or backward movement of a carriage under a platform, the cable comprising a flexible conductor connected to the circuit board and the carriage respectively, and transmitting electric signals between the circuit board and the carriage, and a flexible insulating wrapper enclosing and protecting the flexible conductor. Sheng et al. (Figures 2) also discloses the conductor being a copper foil (re claim 15) and the insulating wrapper being made of thermoplastic material (re claim 16).

Sheng et al. (Figure 2) does not disclose the cable having a curved or wrinkled cross-section. Shikayama discloses a flat flexible cable having a curved or wrinkled cross-section which can be arc-shaped, V-shaped, or W-shaped (Figs 1-3) (re claims 11-14). It would have been obvious to one skilled in the art to provide the cable of Sheng et al. (Figure 2) with the cross-section taught by Shikayama to reduce stress acting on the conductor when the cable is subjected to turning or bending.

Cited Art

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shaw, Soulard and Takano disclose flat cables having support elements.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau N Nguyen whose telephone number is 571-272-1980. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-2800 ext 31. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Chau N Nguyen
Primary Examiner
Art Unit 2831